REMARKS

Claims 1-65 were originally submitted. Claims 21, 26, 51, 57 and 65 have been cancelled, and Claims 28-32 and 59-63 have been withdrawn from consideration pursuant to the election submitted October 14, 2003. Accordingly, Claims 1-20, 22-25, 27, 33-50, 52-56, 58 and 64 are currently being prosecuted in this application.

Claims 14 and 45 have been objected to based on the lack of antecedent basis for the phrase "the depth marker" recited therein. In response to this ground of objection, the dependency of Claims 14 and 45 has been modified such that an antecedent basis now exists for the cited phrase. Accordingly, reconsideration and withdrawal of this ground of objection are respectfully requested.

Claims 1-5, 11-13, 17-23, 26, 27, 33-37, 42-44, 48-53, 56-58 and 64 have been rejected under 35 U.S.C. §102(b) as anticipated by British patent document GB 2 322 479 A, while Claims 6-10 and 38-41 have been rejected under 35 U.S.C. §103(a) as unpatentable over GB '479 A in view of Allen et al (U.S. Patent No. 5,500,913). Finally, Claims 14-16, 45-47, 24-25, 54 and 55 have been rejected as unpatentable over GB '479 A. However, for the reasons set forth hereinafter, Applicants respectfully submit that all claims remaining of record in this

application distinguish over the cited references, whether considered separately, or in combination.

The present invention provides an optical coupling apparatus, and a method of locating a specific optical fiber which is embedded in a composite, and then forming a passage in the composite such that an interface can be made with the optical fiber. Location of the fiber can be achieved by, for example, x-ray imaging. Previously, composites had to be cut in order to expose fiber-ends, or complex manufacturing processes, involving the provision of "flying leads", had to be used. The invention allows interfacing to embedded fibers without the necessity of cutting the composite, and without the use of complex manufacturing techniques. Instead, interfaces to fibers can be formed post-manufacture, or when the composite is already in use, for example as an aircraft panel, or in a marine platform. Neither of the cited references teaches or suggests such a method or apparatus.

GB '479 A discloses an integrated optical device, for example of the type used in an optical switching system. Such a device is required to operate at high speed and with high precision. The tolerances imposed upon these devices are high as they need to operate at very high data rates with low bit error rates. The device described in GB '479 A would not be supported within a composite structure.

The present invention operates at low data rates and does not need to operate at such levels of accuracy or precision. Instead it is "buried" inside a composite and constantly monitors parameters such as strain and temperature, which usually vary very little with respect to time. Accuracy of components and demands on coupling efficiency are therefore relatively low compared with the device described in GB '479 A. Correspondingly, the cost of the present invention is relatively cheap as redundant devices are incorporated into composite structures so that an end user has a degree of choice as to which one(s) is/are used. There is no mention in GB '479 A of providing an optical processing means on a micro substrate embedded within a composite, or of how to locate such a device. This feature is recited in new independent Claims 1 and 33, which therefore distinguish over GB '479 A.

Allen et al discloses an apparatus and method for fabricating directional fiber optic taps. The taps are formed using a laser driving technique. However, only the cladding of the optical fiber is drilled into (for example, Figures 2A and 2B), so that only a small amount of the light transmitted through the fiber is sampled by the tap. Such a tap would be completely unsuited to the task of forming an interface to a fiber. No indication is given as to how a specific fiber can be located, nor is there any mention of providing an optical processing means embedded within a composite which processes light to and from the optical fiber.

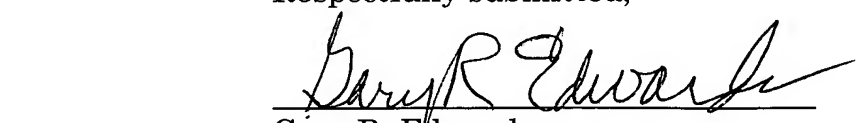
Furthermore, Applicants respectfully submit that the present invention is inventive over both GB '479 A and Allen et al since no clear basis is given, nor is there any indication provided as to how a skilled reader would reach the present invention from a review of GB '479 A or Allen et al or their combination. The technical applications and fields of use of the present invention are quite different from those of GB '479 A and Allen et al. GB '479 A is directed to the manufacture of a hybrid wiring board, while Allen et al is directed to fiber-optics taps. In contrast, the present invention concerns interfacing to optical fibers embedded within a composite. Even if the two disclosures were combined, there is no mention in either document of locating an optical processing means, within a composite, and forming passageways in the composite in order to enable light transmission to/from the embedded optical device to a coupling.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and

please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #2101/50770).

Respectfully submitted,



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